Complete Summary

GUIDELINE TITLE

Clinical policy for the management and risk stratification of community-acquired pneumonia in adults in the emergency department.

BIBLIOGRAPHIC SOURCE(S)

American College of Emergency Physicians (ACEP). Clinical policy for the management and risk stratification of community-acquired pneumonia in adults in the emergency department. Ann Emerg Med 2001 Jul;38(1):107-13. [38 references] PubMed

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Community-acquired pneumonia (CAP)

GUIDELINE CATEGORY

Management
Risk Assessment
Treatment

CLINICAL SPECIALTY

Emergency Medicine
Family Practice
Internal Medicine

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

To present recommendations (clinical policy) that will assist the emergency physician in the risk stratification, disposition, and treatment of patients with community-acquired pneumonia (CAP)

TARGET POPULATION

Patients 18 years of age or older with clinical and radiologic evidence of pneumonia, including patients arriving at the emergency department (ED) from nursing homes.

These guidelines are not intended for use in the following types of patients with pneumonia:

- Patients who are critically ill or who require respiratory support in the emergency department
- Patients with hospital-acquired pneumonia
- Patients with pneumonia rehospitalized within 30 days of their previous hospitalization
- Patients who are pregnant
- Patients with human immunodeficiency virus (HIV) or who are otherwise immunocompromised

INTERVENTIONS AND PRACTICES CONSIDERED

Risk Assessment

1. Clinical assessment and preliminary risk stratification, including assessment of demographics, present illness, coexisting illnesses, physical examination findings (vital signs and mental status), laboratory (arterial oxygen, oxygen saturation, arterial pH, blood urea nitrogen, sodium, hematocrit), radiographic findings, and miscellaneous factors that impact site-of-care decisions (clinical appearance, oral intake, patient reliability, home support)
2. Algorithmic determination of risk using the Pneumonia Patient Outcomes Research Team (PORT) analysis: pneumonia-specific severity index (PSI)
3. Blood cultures
4. Sputum gram stain/culture

Management/Treatment

1. Empirical antibiotic therapy (doxycycline, macrolide, fluoroquinolone, extended spectrum cephalosporin, beta-lactam/beta-lactamase inhibitors, piperacillin, piperacillin-tazobactam, carbapenem, cefepime, clindamycin, or metronidazole) as monotherapy or combination therapy
2. Timing of antibiotic therapy in hospitalized patients

MAJOR OUTCOMES CONSIDERED

- Ability of pneumonia-specific severity indices/classes of severity to predict risk of morbidity and mortality
- Utility of blood cultures and sputum analysis in determining the etiologic agent in unselected patients with community-acquired pneumonia (CAP)
- Thirty-day mortality in patients with community-acquired pneumonia

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

A MEDLINE search for articles published between January 1992 and February 1998 was performed with the key phrase "community-acquired pneumonia." Articles published before 1992 and after 1998 were added when appropriate. The Pneumonia Patient Outcomes Research Team (PORT) report Community-Acquired Pneumonia and subsequent follow-up articles were some of the most applicable to the main focus of the policy.

NUMBER OF SOURCE DOCUMENTS

118 articles

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Strength of Evidence

Class I: Interventional studies including clinical trials, observational studies including prospective cohort studies, aggregate studies including meta-analyses of randomized clinical trials only.

Class II: Observational studies including retrospective cohort studies, case-controlled studies, aggregate studies including other meta-analyses.

Class III: Descriptive cross-sectional studies; observational reports including case series and case reports; consensual studies including published panel consensus by acknowledged groups of experts.

Articles with significant flaws or design bias were downgraded in their strength of evidence.

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

This policy is a product of the American College of Emergency Physicians (ACEP) clinical policy development process, including expert review, and is based on the existing literature; where literature was not available, consensus of emergency physicians was used.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Strength of Recommendations

Level A recommendations. Generally accepted principles for patient management that reflect a high degree of clinical certainty (i.e., based on "strength of evidence Class I" or overwhelming evidence from "strength of evidence Class II" studies that directly address all the issues).

Level B recommendations. Recommendations for patient management that may identify a particular strategy or range of management strategies that reflect moderate clinical certainty (i.e., based on "strength of evidence Class II" studies that directly address the issue, decision analysis that directly addresses the issue, or strong consensus of "strength of evidence Class III" studies).

Level C recommendations. Other strategies for patient management based on preliminary, inconclusive, or conflicting evidence, or, in the absence of any published literature, based on panel consensus.

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Expert review comments were received from emergency physicians, members of the American College of Emergency Physicians' (ACEP´s) Public Health Committee, and specialty societies including members of the American Academy of Family Physicians, the American College of Chest Physicians, and the Infectious Diseases Society of America. Their responses were used to further refine and enhance this policy.

The American College of Emergency Physicians Board of Directors approved this guideline on March 14, 2001.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Definitions for the strength of evidence (Class I-III) and strength of recommendations (Level A-C) are repeated at the end of the Major Recommendations.

Patient Assessment and Risk Stratification

In patients with community-acquired pneumonia (CAP), there are key elements in the history and physical examination, as well as laboratory and radiographic findings, that can be used to assess the risk of death and morbidity. These elements can be useful in the determination of whether a patient needs to be admitted to the hospital, transferred to a nursing home, or treated as an outpatient. Criteria useful in determining whether a patient needs to be admitted to the hospital can be determined by carefully weighing key variables obtained from the clinical assessment of the patient (refer to the table "Clinical assessment and preliminary risk stratification of a patient with CAP" in the original guideline document) or from an algorithmic determination used in the Pneumonia Patient Outcomes Research Team (PORT) analysis (refer to Figure 1, "Identification of patient risk class I: Community-acquired pneumonia," and Figure 2, "Prediction rule scoring system: Community-acquired pneumonia" in the original guideline document). By using Figure 2, the pneumonia-specific severity index (PSI) score and class number can be determined.

Description of patients in the various risk classes

Class I: young (median age, 35 to 37 years); none have pertinent coexisting illnesses or abnormalities.

Class II: typically middle-aged (median age, 58 to 59 years); most are assigned to this group by virtue of age alone.

Class III: typically older (median age, 72 years), and most had at least one pertinent coexisting illness, one physical examination abnormality, or one laboratory or radiographic abnormality.

Classes IV and V: somewhat older (median age, 75 years) and never assigned to the class by virtue of age alone; the majority had abnormalities in 2 (Class IV) or all 3 (Class V) of the pertinent risk factor categories.

This classification scheme, which is based on the pneumonia-specific severity index (PSI), potentially has utility to the emergency physician. All Class I patients and many in Classes II and III are likely candidates for outpatient treatment. The remaining Class II and III patients may be candidates for a short hospital stay (< 24 hours).

Risk Stratification as a Basis for Criteria for Hospitalization Recommendations

Level A recommendations. Hospitalize patients in pneumonia-specific severity index Class IV and V.

Level B recommendations. Identify low-risk patients eligible for outpatient therapy by using the pneumonia-specific severity index.

Level C recommendations. None specified.

Blood culture recommendations:

Level A recommendations. None specified.

Level B recommendations. None specified.

Level C recommendations. Obtain blood cultures in all hospitalized patients with CAP.

Sputum Gram Stain/Culture Recommendations:

Level A recommendations. None specified.

Level B recommendations. None specified.

Level C recommendations. Consider sputum culture and Gram stain on adequate specimens in high-risk patients who are hospitalized.

Empiric Therapy of CAP Recommendations:

Level A recommendations. None specified.

Level B recommendations. None specified.

Level C recommendations. As one option, consider antibiotic therapy as outlined in the Appendix of the original guideline document.

Administration of Antibiotics for Hospitalized Patients with CAP Recommendations:

Level A recommendations. None specified.

Level B recommendations. Start antibiotics in all hospitalized patients diagnosed with CAP, and within 8 hours in patients 65 years or older.

Level C recommendations. None specified.

Definitions:

Strength of Evidence

Class I: Interventional studies including clinical trials, observational studies including prospective cohort studies, aggregate studies including meta-analyses of randomized clinical trials only.

Class II: Observational studies including retrospective cohort studies, case-controlled studies, aggregate studies including other meta-analyses.

Class III: Descriptive cross-sectional studies; observational reports including case series and case reports; consensual studies including published panel consensus by acknowledged groups of experts.

Articles with significant flaws or design bias were downgraded in their strength of evidence.

Strength of Recommendations

Level A recommendations. Generally accepted principles for patient management that reflect a high degree of clinical certainty (i.e., based on "strength of evidence Class I" or overwhelming evidence from "strength of evidence Class II" studies that directly address all the issues).

Level B recommendations. Recommendations for patient management that may identify a particular strategy or range of management strategies that reflect moderate clinical certainty (i.e., based on "strength of evidence Class II" studies that directly address the issue, decision analysis that directly addresses the issue, or strong consensus of "strength of evidence Class III" studies).

Level C recommendations. Other strategies for patient management based on preliminary, inconclusive, or conflicting evidence, or, in the absence of any published literature, based on panel consensus.

CLINICAL ALGORITHM(S)

Algorithms are provided for the identification of patient risk class for community-acquired pneumonia.

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- Accurate assessment of risk in patients with community-acquired pneumonia
- Reduction in morbidity, mortality, and hospital admissions related to community-acquired pneumonia (CAP)

POTENTIAL HARMS

Not stated

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

There are many clinical questions about community-acquired pneumonia (CAP) that remain unanswered, and recommendations made solely on the basis of evidence-based medicine are still few. As with all clinical policies, this policy is advisory only and should not supersede individual physician judgment in specific clinical circumstances.

Limitations of the Pneumonia Patient Outcomes Research Team (PORT) Pneumonia Severity Index (PSI)

- There may be medical and psychosocial contraindications to outpatient care.
- Some patients with conditions (e.g., immunosuppression) that contribute to decision-making are not included in the model´s predictors.
- The dichotomous construction of some of the variables may oversimplify the physician´s decisions.
- It does not include pulse oximetry in the initial determination of class I patients.
- The physician´s clinical judgment should supersede a strict application of this scoring system.
- PORT was validated as a mortality prediction rule and not as a method for triage of patients with community-acquired pneumonia.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

American College of Emergency Physicians (ACEP). Clinical policy for the management and risk stratification of community-acquired pneumonia in adults in the emergency department. Ann Emerg Med 2001 Jul;38(1):107-13. [38 references] PubMed

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2001

GUIDELINE DEVELOPER(S)

American College of Emergency Physicians - Medical Specialty Society

SOURCE(S) OF FUNDING

American College of Emergency Physicians

GUIDELINE COMMITTEE

American College of Emergency Physicians (ACEP) Clinical Policies Subcommittee on Community-acquired Pneumonia

ACEP Clinical Policies Committee

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the American College of Emergency Physicians Web site.

Print copies: Available from the American College of Emergency Physicians, ACEP Customer Service Department, P.O. Box 619911, Dallas, TX 75261-9911, or call toll free (800) 798-1822, touch 6.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on January 29, 2003. The information was verified by the guideline developer on March 13, 2003.

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